

REMARKS

Claims 9-18 were pending in the above-identified application when last examined and are amended as indicated above. The claim amendments clarify the claim language and are not intended to limit the scope of the claims, unless the claim language is expressly quoted in the following remarks to distinguish over the art cited.

Claims 9-11 were rejected under 35 U.S.C. § 102(b) as anticipated by Japan patent No. 2001157664 (Nakajima). Applicants respectfully traverse the rejection.

Amended independent claim 9 distinguishes over Nakajima at least by reciting, “forming a standoff on the substrate and surrounding the array of lenses; forming a barrier on the substrate between the standoff and the array of lenses; and attaching a cover to the standoff using an adhesive on a top surface of the standoff, wherein the barrier blocks the adhesive from extending onto the array of lenses.”

Nakajima discloses, “A CCD image sensor 5 has a CCD chip 51 and a microlens array 53. A plurality of bump members 55 are provided on the image pickup surface of the CCD chip 51, and leads 56 are electrically connected to these bumps respectively. Also, a cover glass 50 is bonded with the image pickup surface 52 side of the CCD chip 51 by an adhesive. Also, a frame-shaped wall part 54 which is square in plan view is provided on the image pickup surface 52 side of the CCD chip 51.” See the English language Abstract for Nakajima.

The Examiner cites wall part 54 as corresponding to the standoff recited in claim 9. However, Nakajima fails to suggest “a barrier on the substrate between the standoff and the array of lenses” as recited in claim 9. Further, it would not have been obvious to modify Nakajima to add the recited barrier because Nakajima discloses an adhesive 57 that fills in around bump members 55 and leads 56 and is kept outside wall part 54, rather than being applied to the top of wall 54. Accordingly, claim 9 is patentable over Nakajima.

Claims 10 and 11 depend from claim 9 and are patentable over Nakajima for at least the same reasons that claim 9 is patentable over Nakajima.

For the above reasons, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. § 102.

Claims 12-16 and 18 were rejected under 35 U.S.C. § 103(a) as unpatentable over Nakajima in view of U.S. patent No. 6,594,916 (Boroson). Claim 16 is canceled. Applicants respectfully traverse the rejection of claims 12-15 and 18.

Claims 12 is amended to independent form and distinguishes over the combination of Nakajima and Boroson at least by reciting, “cutting the cover while the cover is attached to the standoff, wherein cutting the cover removes a portion of the cover that overlies active circuitry in the substrate and leaves an underlying portion of the substrate intact.” Neither Nakajima nor Boroson suggest cutting a cover to remove a portion that overlies active circuitry. Accordingly, claim 12 is patentable over the combination of Nakajima and Boroson.

Claim 13, which depends from claim 12, further distinguishes over the combination of Nakajima and Boroson by reciting, “cutting grooves in an underside of the cover before attaching the underside of the cover to the standoffs, wherein cutting to remove the portion of the cover overlying active circuitry cuts from a topside of the cover down to the grooves.” As described in Applicants’ specification, pre-cutting grooves in the cover can provide additional tolerance for sawing the cover without damaging the underlying substrate. The combination of Nakajima and Boroson fail to provide any suggestion of this process. Accordingly, claim 13 is patentable over the combination of Nakajima and Boroson.

Claims 14, 15, and 18 depend from claim 9, which is patentable over Nakajima for at least the reasons given above. In particular, Nakajima fails to disclose or suggest “a barrier on the substrate between the standoff and the array of lenses; and attaching a cover to the standoff using an adhesive on a top surface of the standoff, wherein the barrier blocks the adhesive from extending onto the array of lenses.” Boroson discloses several different packages including a sealing material 20 surrounding one or more moisture sensitive devices 12, but fails to disclose or suggest a barrier between a standoff and an array of lenses. Accordingly, the combination of Nakajima and Boroson fails to disclose or suggest the method recited in claim 9, and claims 14, 15, and 18, which depend from claim 9, are patentable over the combination of Nakajima and Boroson.

For the above reasons, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103.

Claim 17 was objected to as dependent upon a rejected claim but was indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 17 is amended to independent form including the limitations of base claim 9 and intervening claim 16. Accordingly, Applicants request reconsideration and withdrawal of the objection to claim 17.

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Claims 19-30 are added.

Claims 19-21, 22, and 23-26 respectively depend from independent claims 9, 12, and 17 and are patentable for at least the same reasons as their respective base claims.

New independent claim 27 is distinguished over the cited art at least by reciting, "forming a standoff on the substrate and surrounding the array of lenses, the standoff including a vent and a channel for the gas flow, the channel including one or more turns; and attaching a cover to the standoff, wherein attaching the cover leaves the vent and the channel open to permit gas flow to a gap between the cover and the array of lenses, the gas flow preventing external pressure changes from distorting the cover." Claims 28-30 depend from claim 27 and are patentable for at least the same reasons that claim 27 is patentable.

In summary, claims 8-18 were pending in the application. This response amends claims 9, 12, 13, and 17, cancels claim 16, and adds claims 19-30. For the above reasons, Applicants respectfully request allowance of the application including claims 9-15 and 17-30.

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Respectfully submitted,



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